

We claim:

1. A process for the production of ferric oxide precipitates having a selected particle size, comprising selecting a combination of a temperature and a seeding ratio, and conducting said process at pressures above atmospheric to obtain ferric oxide precipitates of the selected particle size.
2. The process of claim 1 wherein the seeding ratio is the ratio of the weight of seed solid to the weight of expected unseeded precipitate product.
3. The process of claim 1 wherein the temperature is from about 100°C to about 300°C.
4. The process of claim 1 wherein the temperature is from about 175°C to about 240°C.
5. The process of claim 1 wherein the seeding ratio is from about 20% to about 2000%.
6. The process of claim 1 wherein the seeding ratio is from about 50% to about 500%.
7. The process of claim 1 wherein the selected particle size is from about 0.1 to about 10 microns.
8. The process of claim 1 wherein the selected particle size is from about 0.15 to about 2.5 microns.
9. The process of claim 1 wherein the ferric oxide precipitates are obtained in from about one minute to about 6 hours.
10. The process of claim 1 wherein the ferric oxide precipitates are obtained in from about 30 minutes to about 1 hour.
11. The process of claim 1 wherein said process is conducted at a pressure of from about 10 to about 1300 psig.
12. The process of claim 1 wherein said process is conducted at a pressure of from about 100

to about 500 psig.

- 5 13. The process of claim 1 wherein the ferric oxide precipitates are obtained from a feed solution comprising iron solubilized in one of nitric acid, sulfuric acid, and hydrochloric acid.
14. The process of claim 1 wherein the ferric oxide precipitates are obtained from a feed solution comprising iron solubilized in nitric acid.
- 10 15. The process of claim 13 wherein the feed solution has an iron concentration of from about 5 g/L up to the onset of crystallization of the ferric salt.
16. The process of claim 13 wherein the feed solution has an iron concentration of from about 15 10 g/L to about 100 g/L.
17. The process of claim 13 wherein the feed solution has an iron concentration of from about 30 g/L to about 60 g/L.
- 20 18. The process of claim 13 wherein the feed solution has a free acid concentration of from about 0 g/L to about 150 g/L.
19. The process of claim 13 wherein the feed solution has a free acid concentration of from about 30 g/L to about 70 g/L.
- 25 20. The process of claim 1 wherein the ferric oxide precipitates have an  $L^*$  of about 40 to about 60.
21. The process of claim 1 wherein the ferric oxide precipitates have an  $L^*$  of about 49 to about 55.
- 30 22. The process of claim 1 wherein the ferric oxide precipitates have an  $a^*$  of about 10 to about 40.

23. The process of claim 1 wherein the ferric oxide precipitates have an  $a^*$  of about 19 to about 33.
24. The process of claim 1 wherein the ferric oxide precipitates have an  $b^*$  of about 5 to about 35.
25. The process of claim 1 wherein the ferric oxide precipitates have an  $b^*$  of about 12 to about 28.
26. The process of claim 1 conducted in a batch or a continuous fashion.
27. The process of claim 1 wherein the ferric oxide precipitates have a smooth surface texture.